

1SUPPORTING STATEMENT - PART B
U.S. Department of Commerce
U.S. Census Bureau
Manufacturers' Shipments, Inventories, and Orders Survey
Form (M-3(SD))
(OMB Control No. 0607-0008)

B. Collection of Information Employing Statistical Methods

1. Universe and Respondent Selection

The universe for the M3 survey includes all manufacturing companies in the most recent Economic Census and companies or units of companies supplemented through M3 analyst research. There were approximately 249,000 companies in the 2017 Economic Census - Manufacturing, representing almost 292,000 establishments. The target sample for the M3 survey includes all companies with at least \$500 million in annual manufacturing shipments and a supplemental panel of all other manufacturing companies. In addition, the M3 staff stays apprised of recent company merger and acquisition activity, as well as company births and deaths, and they adjust the survey panel accordingly. There were approximately 1,250 manufacturing companies exceeding \$500 million of manufacturing shipments in the 2017 Economic Census. Of these large manufacturing companies, about 46 percent currently report shipments data in the M3 survey, and this increases to about 61 percent when also including companies for which shipments data are imputed. In an attempt to improve the coverage of the M3 survey panel, the M3 staff plans to research the large manufacturing companies for which shipments data are currently neither reported nor imputed in the M3 survey. Because of the voluntary nature of the survey and the fact that a number of companies have a policy of not responding to voluntary surveys, some in-scope companies are not included in our panel. The actual panel consists of approximately 3,100 companies.

For this survey panel, we request large diversified companies to submit separate reports monthly for each division or "natural business unit" with significant manufacturing activity, and for which they maintain monthly data for their own financial and managerial purposes. These reports generally correspond to the statistical industry categories for which we prepare estimates in the survey. However, the divisional structure of some companies does not correspond closely to our industry categories, thus we request additional allocations of data for industries in which there is a significant amount of manufacturing activity. For example, a company may compile financial records for one business unit, which corresponds to a combination of two or more of our industry categories. In this situation, we ask the company to allocate the data from their single-business unit to our multiple industry categories. Because some companies have more than one

business unit, we request data for approximately 5,000 reporting units that represent roughly 3,100 unique companies. For homogeneous companies that consist of a single business unit, the company is the reporting unit. We obtained an average 61 percent return rate from all mail-out units. As of July 2020, the companies for which shipments data are reported in the M3 survey represented approximately 51 percent of the total value of shipments from the 2017 Economic Census. The companies for which shipments data are either reported or imputed in the M3 survey represented approximately 60 percent of the total value of shipments from the 2017 Economic Census.

Since the survey is conducted on a voluntary basis, a continuous effort is necessary to maintain a representative reporting panel. Survey contacts at all large companies who agree to report in the survey, but have not reported for the current month, are called to assure inclusion of their data. If we fail to receive reports from any smaller companies in two consecutive months, we call to request data.

2. Procedures for Collecting Information

The panel for this survey consists of nearly all manufacturing companies with annual shipments of \$500 million or more and a small sample of companies with \$50 to \$499 million annual shipments that are willing to report on a voluntary basis. We review and supplement the large company stratum regularly with companies that are willing to report in the survey. The sample of smaller companies was introduced in 1978 and supplemented in 1993 for industries where smaller companies carry a greater influence on the data. In 2007, an augmentation of the M3 survey panel was conducted to improve the quality of the estimates.

We impute for companies that do not respond to the survey by applying the average percentage change for the industry to their prior period data. However, if a company demonstrates historically unique monthly patterns in their data, we impute by using the trends of their previous data.

We develop the monthly estimates in the survey from beginning historical points for shipments, unfilled orders, and inventories, which are linked forward by monthly ratios of change of comparable sets of reporting companies. The new orders data are derived from the shipments and from the month-to-month difference in unfilled orders data. We benchmark the monthly shipments and inventories data to the Annual Survey of Manufactures (ASM) and the manufacturing sector of the Economic Census, as those data become available. The results of the most recent benchmark were released in May 2020. We benchmark the monthly unfilled orders data using adjusted estimates from the annual Manufacturers' Unfilled Orders Survey.

The benchmarking procedure is designed to minimize the revision to the month-to-month percent change. Since revisions to the aggregate data for a year are usually 2 percent or less, revisions to the monthly estimates are relatively small and rarely result in changes to the monthly trends. The M3 survey estimates are not based on a probability sample, so the sampling error of these estimates cannot be measured, nor can the confidence intervals be computed.

3. Methods to Maximize Responses

As an ongoing portion of our analysts' work, all analysts contact delinquent companies by telephone to encourage response. In order to maintain and enhance current response levels, staff research more than sixty non-responding units per year.

Despite these efforts, the survey faces several challenges in attracting and retaining respondents. The voluntary nature of the survey continues to be a problem as more and more companies are refusing to report on voluntary surveys, like the M3 survey. The high level of mergers and acquisitions over the past three years has also been a problem as currently reporting companies have been absorbed by companies that have chosen not to respond.

The M3 survey contacts have the option to receive an e-mail reminder when reporting period open online or they receive a mailed form. The M3 survey is mailed at the end of the business calendar month, while the e-mails are sent out six business days later. Responses can be provided via mail, fax, telephone or Internet.

M3 survey analysts and the National Processing Center in Jeffersonville, Indiana perform telephone follow-up for all companies that have not responded by the 10th business day of the month. In addition, a second e-mail with past due notice is sent out to respondents who did not submit the form. The telephone follow-up is also used if firms have not completely filled out the form or have reported questionable data that may be unacceptable for any of the estimates. Companies that refuse to respond to the survey are called to convey the importance of their participation.

We believe we will have more success in obtaining new reporters than we have had in the past as we continue to provide easier choices of reporting methods and as we can demonstrate the ease of reporting using simplified data collection instruments. Currently, all new company additions to the survey are encouraged to report via the Centurion internet-based collection instrument. See the discussion under (A.3), Use of Information Technology, for more information on these reporting methods.

4. Tests of Procedures or Methods

The results of the methods for developing shipments, inventories, and unfilled orders data are regularly verifiable when benchmark data become available from the ASM, Economic Census, and the Manufacturers' Unfilled Orders Survey. We completed an evaluation of the M3 survey as required by Statistical Policy Directive No. 3 on Compilation, Release, and Evaluation of Principal Federal Economic Indicators. This evaluation was submitted to the OMB in December 2017. The next evaluation will be submitted to OMB in December 2020.

5. **Contacts for Statistical Aspects and Data Collection**

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Appendices

- A. Form M-3(SD)
- B. Transmittal Letter
- C. Advance Total Manufacturing Tables
- D. BEA Letter of Support for M3

- E. Instruction Manual
- F. Instrument Screenshots
- G. Sample Advance Report
- H. Sample Full Report